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(54) Improvements in or relating to
industrial wearing apparel

(57) The invention provides industrial
wearing apparel such as a boiler suit

wherein the jacket portion thereof is
provided with a hand-engaging loop 5
at the centre of the top of the back
thereof and a loop 2 at each of the
shoulder regions that can be grabbed
by a person to pull and rescue the
wearer from a scene of an accident or
danger, the said loops forming parts of
a built-in harness incorporating straps
that transmit a pulling action on said
loops to beneath the armpits and/or
beneath the crutch of a wearer, or to a
trouser or jacket waist band.

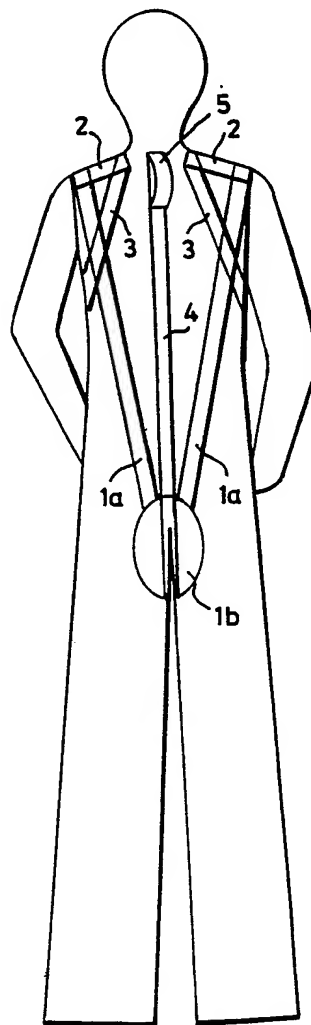


FIG. 2.

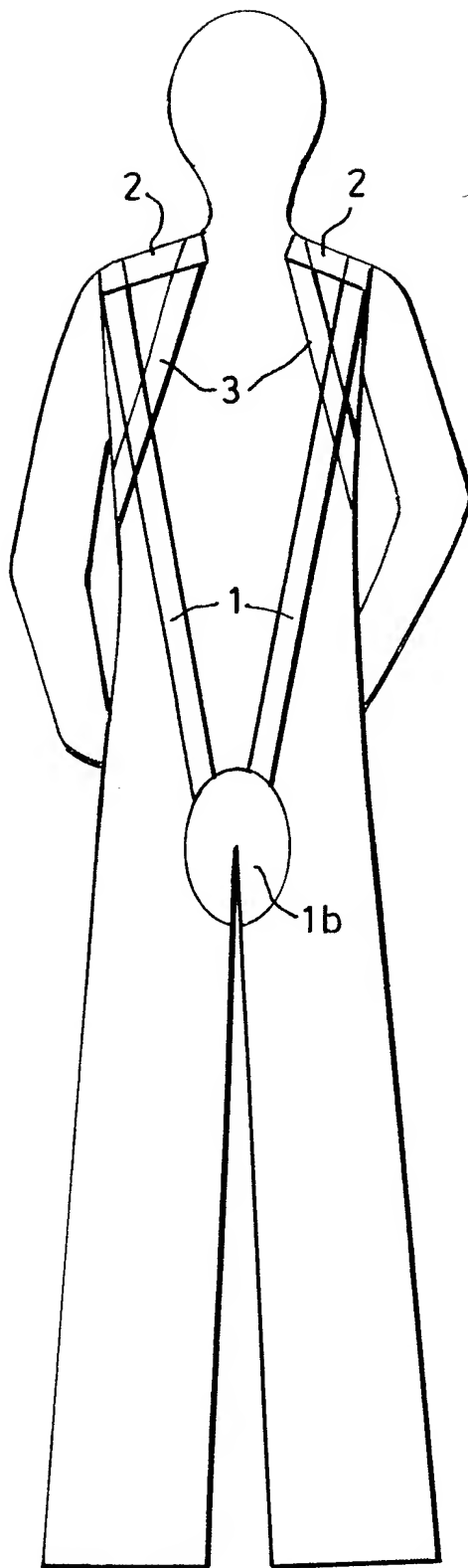


FIG. 1.

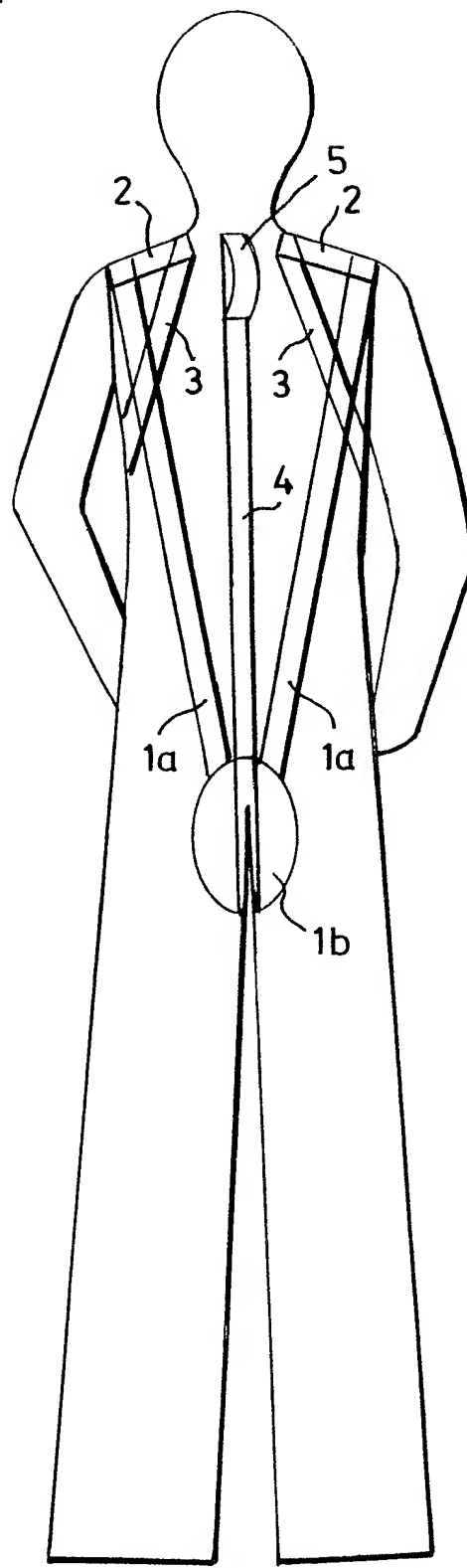


FIG. 2.

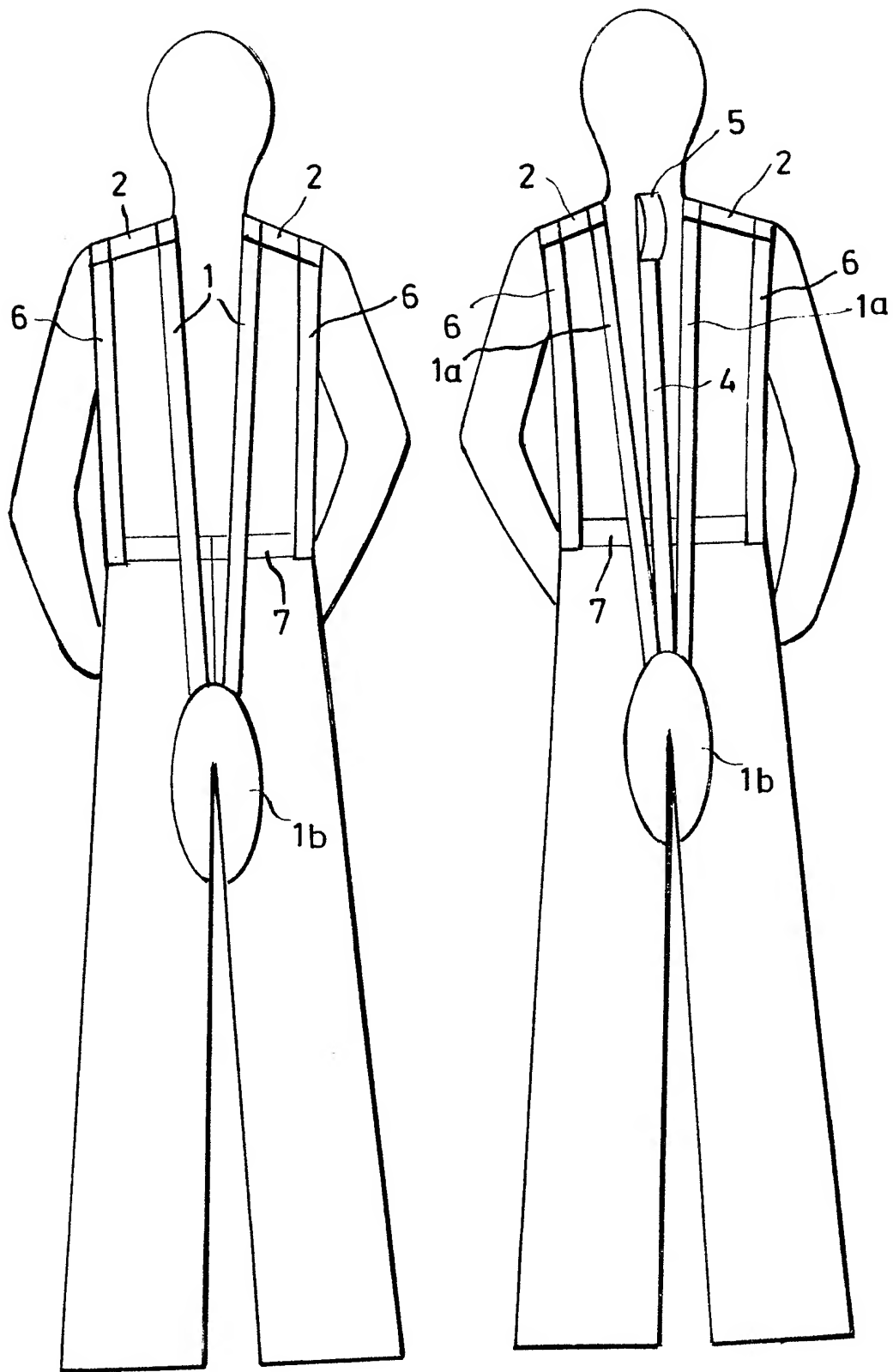


FIG. 3.

FIG. 4.

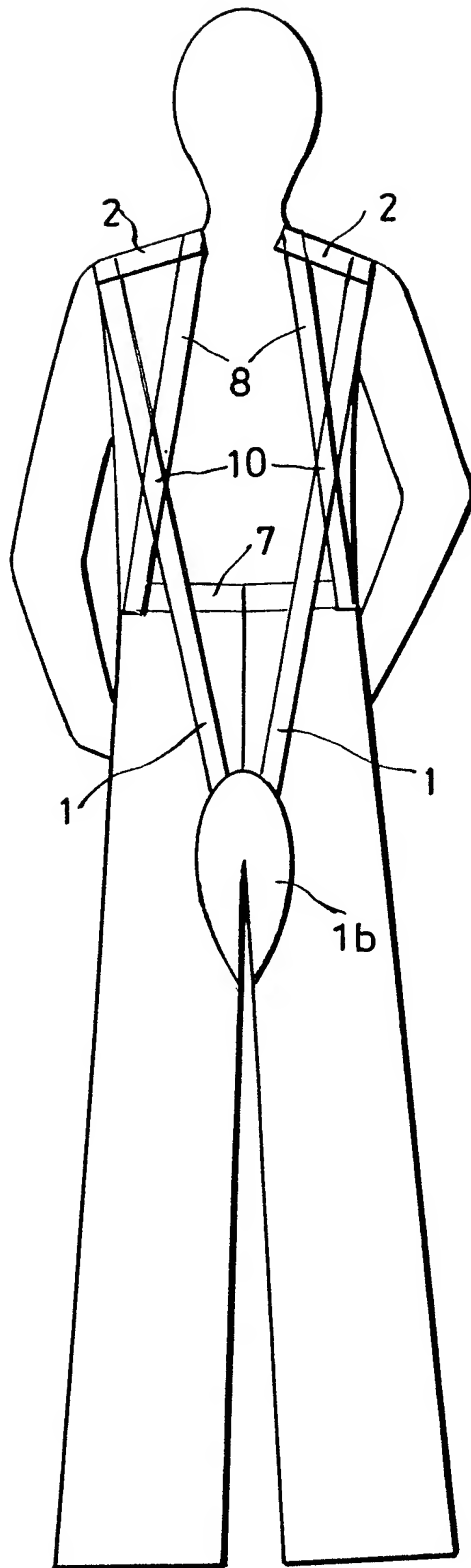


FIG. 5.

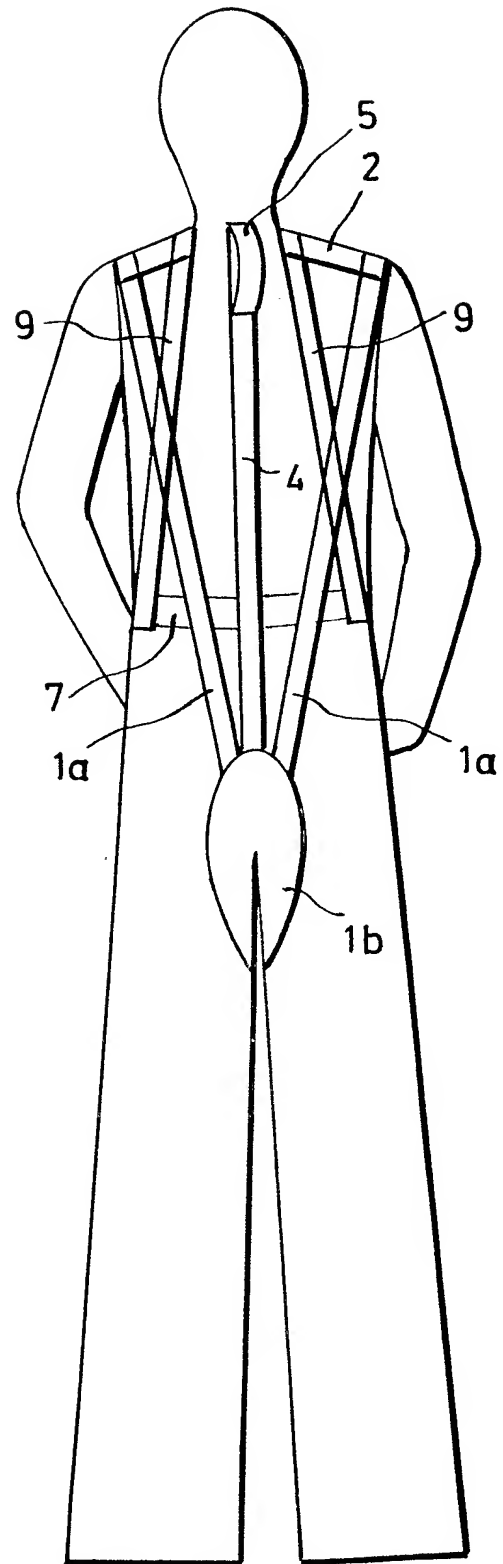


FIG. 6 .

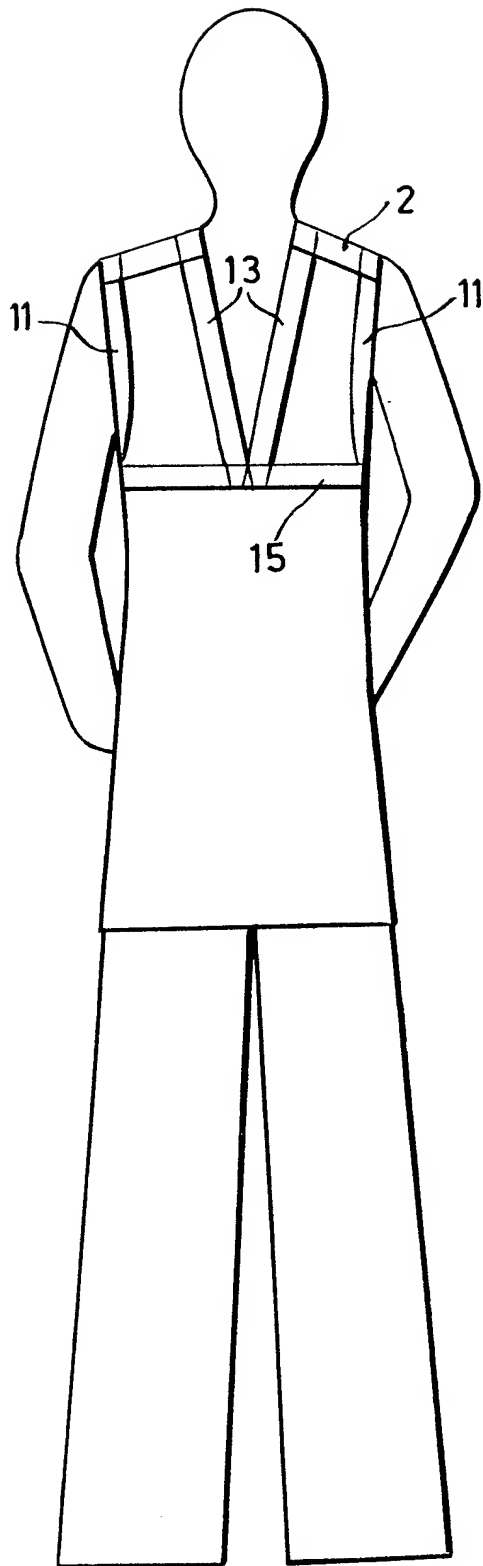


FIG. 7.

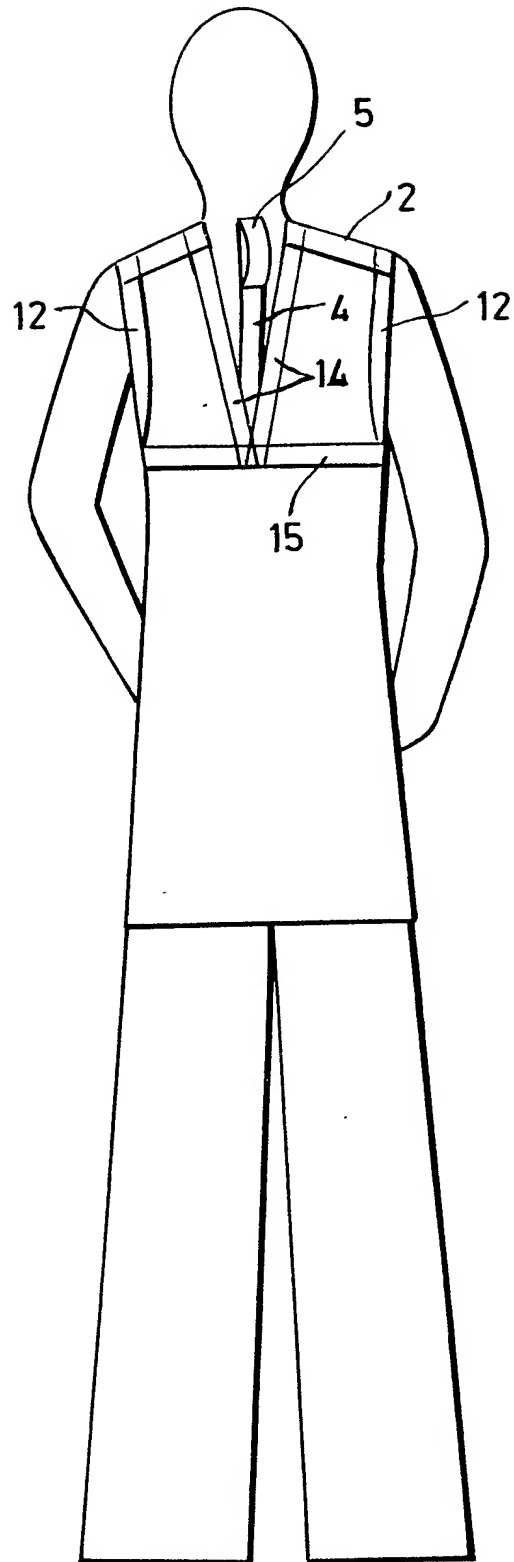


FIG. 8 .



FIG. 9.



FIG 10.

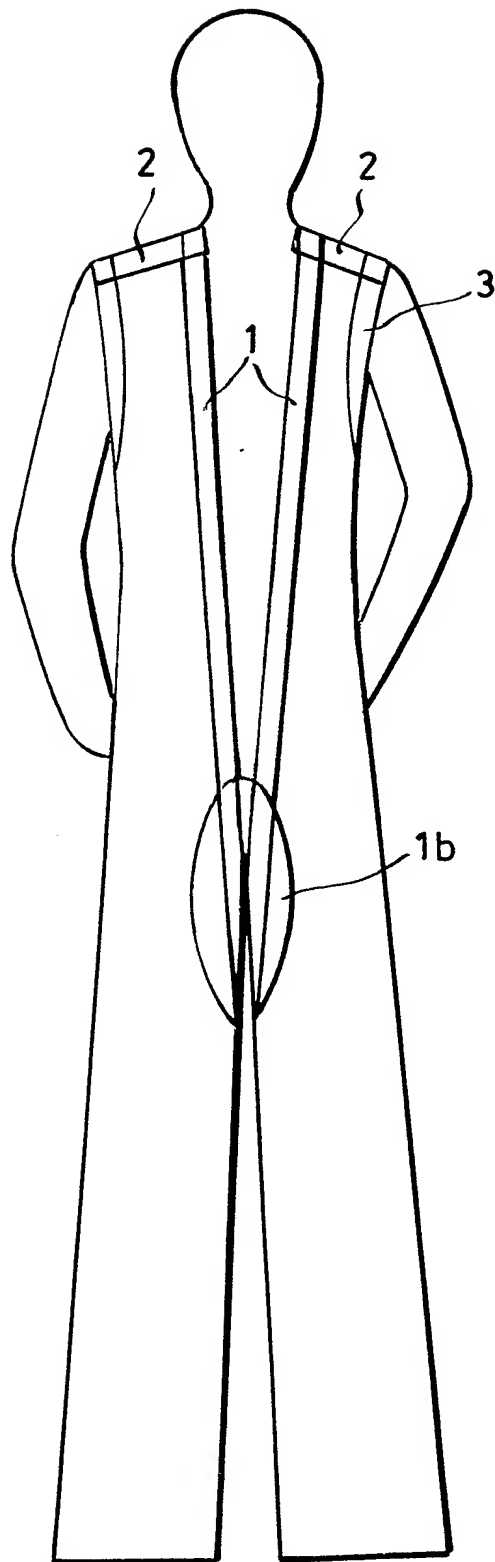


FIG. 11.

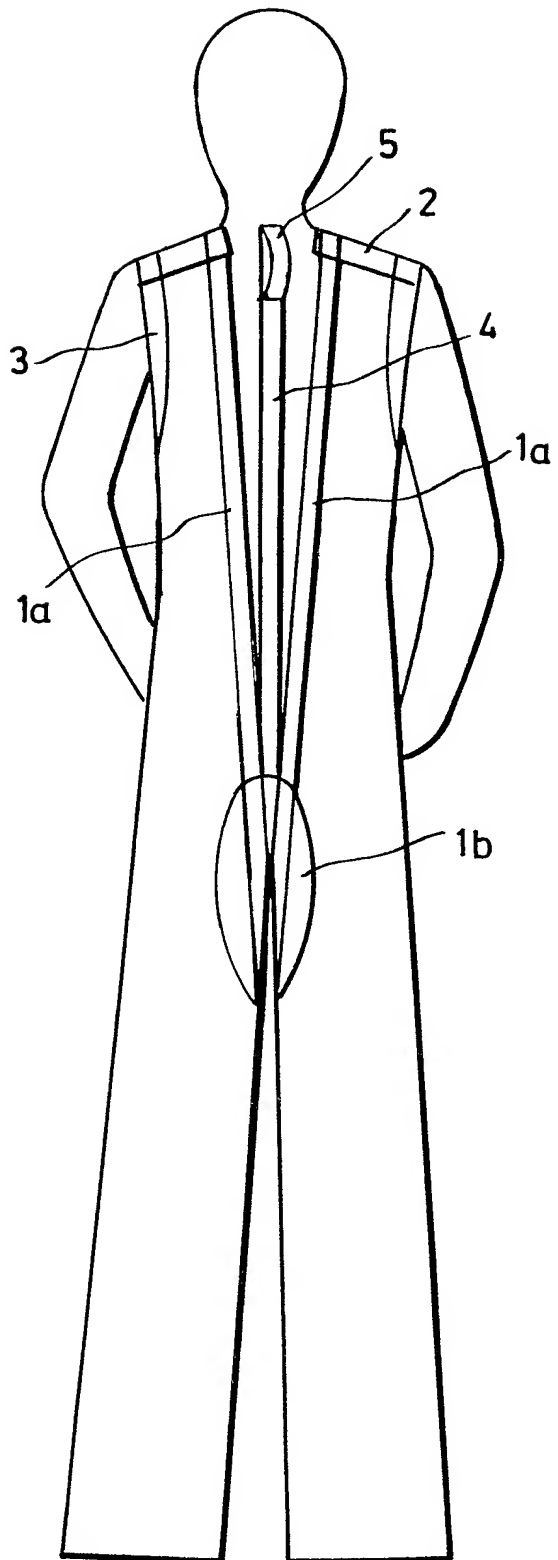


FIG. 12.

SPECIFICATION

Improvements in or relating to industrial wearing apparel

5 This invention relates to boiler suits, jackets and trousers and like garments of wearing apparel and is more particularly, though not exclusively, concerned with work garments for wear by persons engaged on tasks in hazardous occupations.

10 The object of the invention is to provide such wearing apparel constructed so as to incorporate a built-in safety harness to enable a resuer to grab a part thereof and pull the wearer away from the scene of an accident to safety.

15 According to the present invention there is provided industrial wearing apparel wherein the upper chest covering part or jacket of the garment comprises three hand-engageable external main pulling loop-like portions positioned one centrally at the top of the back of the garment and also one at each of the shoulder regions of the garment and that form parts of a built-in harness extending down both the front and back of the garment and having secondary loop-like portions arranged to engage under the armpits, or portions connected to a waistband of trousers and/or to the trouser portion that engages under the crutch of a wearer, the harness forming wholly or partly an integral part of the garment, i.e. the chest-covering part of the garment, a trouser part of the garment or of all of said parts.

20 The arrangement is such that a rescuer would be able to grab said external main loop-like part of the garment at the centre back of the garment and/or in the shoulder regions and by exerting force, pull and drag the body away from the scene of the accident. Preferably said external shoulder hand grip portions resemble epaulettes serving as handles and the centre back hand grip a loop at the top of a strap extending down the back of the garment and connected to a crutch part of the garment.

25 The force exerted in pulling the epaulettes as handles can be directed and transmitted from both ends of the epaulettes by means of various forms of "harness" arrangements to effectively direct the pull exerted, to under the arms and/or under the crutch of the body, the force being transmitted both down the front of the garment and the back of the garment so as to result in a "cradle" effect.

30 Conveniently, straps constituting the harness are secured to the material of the garment leaving only the main loop-like portions, i.e. the epaulette-like handles at the shoulder regions and the centre back loop free or open so that a rescuer can readily insert his or her hand through or under the loop so that the latter can be easily grasped or clutched. An important advantage of the top centre back loop is that it constitutes a third point (between the epaulette-like handles) that can be gripped quickly to enable a rescuer to obtain a further position of grip to lift or drag a body clear of danger, particularly if the body is lying face down. This centre back loop also facilitates lifting of the face of a person away from a surface on which the person is lying so as to avoid injury to the persons face during any dragging

action.

35 The areas or zones in which the garment of this invention can advantageously be used and the people who would benefit are persons who are engaged in hazardous occupations where there is the risk of explosions, nuclear accidents, underground operations and in confined areas. The harness is incorporated in a garment so as not to restrict the movement of the wearer.

40 The invention provides for, in chest fitting garments, a very secure form of epaulette or cross shoulder strap, which is part of the harness and attached to the interior or exterior harnesses which extends from the shoulder and/or neck point via both sides of the body to under the arms and/or under the crutch.

45 In the case of trousers, the harness is attached to the trousers in a like manner passing under the crutch with the epaulettes and centre back loop forming the pulling points, either pulling from the outer end of the shoulder to the crutch or from the neck or inner end point to the crutch with a supplementary harness under the armpits. Likewise by grasping and pulling on the centre-back loop a pull is transmitted to the part of the girdle passing under the crutch.

50 Where the harness reaches the fork or crutch point, reinforcement is placed in the fork area both on the front and the back of the garment to enable the harness to be fully secured to this point, since the strength of the harness has to be such that it will allow the body to be suitably dragged or lifted from the scene of an accident.

55 The harness is an integral part of the garment and is attached to, or built into, the garment either on the outer face of interior of the garment, except in the case of leg garments where the lower part of the harness only would be an integral part of the garment.

60 To enable the invention to be clearly understood embodiments thereof will now be described by way of example with reference to the accompanying purely diagrammatic drawings wherein:-

65 *Figures 1 and 2, 3 and 4, and 5 and 6* are front and back views respectively of three embodiments as applied to boiler suit and trouser harness constructions.

Figures 7 and 8, and 9 and 10 are front and back views respectively of two embodiments as applied to coat and jacket harness constructions, and

Figures 11 and 12 are front and back views respectively of two embodiments as applied to boiler suit harness.

Referring to said drawings, and firstly to *Figures 1 and 2*, a boiler suit comprises harness straps 1 of webbing or like suitable material at the front which extend at 1a down the back of the suit and are connected to shoulder portions 2 that resemble epaulettes constituting two of three main pulling loops and the latter also have secured thereto straps 3 in the form of subsidiary loops that extend down the front and back of the wearer and engage under the wearer's armpits and that may be secured to the material of the garment. The lower ends of the front and back straps 1 and 1a are secured to a reinforce-

ment 1*b* attached to leg portions or trousers to ensure that the harness is fully secured at this point where it passes beneath the crutch of a wearer to provide adequate strength at this point. The part of the harness at the leg or trouser region is secured to and built into the trousers.

The harness also essentially comprises a centre back strap or web 4 formed at the upper end thereof with a loop 5 constituting the third pulling loop that may be grabbed by a rescuer to facilitate an incapacitated wearer of the boiler suit to be lifted and dragged clear of danger, particularly if the wearer is lying face down.

Each strap or web of the harness may be secured wholly or partly along its complete length to the material of the garment leaving the main gripping and pulling loops 2 and 5 themselves not closed but secured to the garment so as to be free or open so that a rescuer can readily pass his or her hand therethrough so as to obtain a good grip on the loop when dragging or lifting a casualty to safety.

Figures 3 and 4 illustrate an embodiment similar to Figures 1 and 2 only in this case the subsidiary loops 3 are replaced by strap portions 6 at both the back and front that are secured at their lower ends to the waist band 7 of the trousers instead of passing under the arm pits.

Figures 5 and 6 illustrate an embodiment similar to Figures 3 and 4 but wherein the straps 1 and 1*a* extend from the outer ends of the loop forming shoulder portions or epaulettes 2 and strap-like portions 8 and 9 at the front and the back cross the straps 1 and 1*a* and are sewn to the latter at their points of intersection 10 and are secured at their lower ends to the trouser waistband 7.

Figures 7 and 8 illustrate how the invention is applied to a coat or jacket only and in this case the harness comprises shoulder looped portions or epaulettes 2, side straps 11 at the front and similar straps 12 at the back that combine to constitute subsidiary loops that engage under a wearer's armpits and centre straps 13 at the front that merge into similar straps 14 at the back, the lower ends of all these straps and also the centre backstrap 4 being connected to a body circumferentiating strap 15.

Figures 9 and 10 illustrate a modified form of harness for a coat or jacket only wherein the harness at the front comprises loop forming epaulettes 2 to which are attached the upper ends of front cross straps 16 that are secured at their lower ends to a body circumferentiating strap 17 extending beneath a wearer's armpits, the harness at the back comprising cross straps 18 extending from the outer ends of the epaulettes and secured at their lower ends to the strap 17. The epaulettes 2 are additionally connected to the strap 17 by straps 19 extending down from the epaulettes to said strap 17, the straps 18 and 19 being joined together at their points of intersection.

Referring lastly next to Figures 11 and 12, these illustrate the invention as applied as an integral part of a boiler suit and wherein the harness is substantially the same as that illustrated by Figures 1 and 2 except that the straps 1 and 3 do not cross and for which reason similar reference numerals are used to illustrate similar parts. The modification here is that

the straps 1 and 1*a* extend downwardly from the inner ends of the loop forming epaulettes and the straps 3 from the outer ends of said epaulettes. This arrangement may also be applied to a suit having a trouser waistband as illustrated in Figures 3 and 4.

In all cases the straps, which are of webbing of stout strong closely woven or other suitable material in the form of narrow bands, form an integral part of the garment to which they are applied and can be built into the garment on either inner or outer face thereof by stitching or can be sandwiched between layers of material at the parts of the garment they combine with. In the case of trousers as shown in Figures 1 and 2, 3 and 4, and 5 and 6, it will be appreciated that if desired only the lower part of the harness need be an integral part of the garment.

CLAIMS

1. Industrial wearing apparel wherein the upper chest covering part or jacket of the garment comprises three hand-engageable external main pulling loop-like portions positioned one centrally at the top of the back of the garment and also one at each of the shoulder regions of the garment and that form parts of a built-in harness extending down both the front and back of the garment and having secondary loop-like portions arranged to engage under the armpits, or portions connected to the waistband of trousers and/or to the trouser portion that engages under the crutch of a wearer, the harness forming wholly or partly an integral part of the garment, i.e. the chest-covering part of the garment, a trouser part of the garment or of all of said parts.
2. Industrial wearing apparel as claimed in Claim 1, wherein the hand engaging pulling loop positioned centrally at the top of the back of the garment is formed at the upper end of a back strap secured at its lower end to the crutch portion of trousers or to the waistband of the jacket or to the waistband of trousers.
3. Industrial wearing apparel as claimed in Claim 1, wherein the hand-engaging pulling loops at the shoulder regions resemble epaulettes.
4. Industrial wearing apparel constructed with a built-in harness having hand-grabbing pulling loop-like parts enabling a rescuer to pull the wearer of the apparel away from the scene of an accident or danger, constructed substantially as herein described with reference to and as illustrated by Figures 1 and 2, 3 and 4, 5 and 6, 7 and 8, 9 and 10, or 11 and 12 of the accompanying diagrammatic drawings.

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ABSTRACT:

The invention provides industrial wearing apparel such as a boiler suit wherein the jacket portion thereof is provided with a hand-engaging loop 5 at the centre of the top of the back thereof and a loop 2 at each of the shoulder regions that can be grabbed by a person to pull and rescue the wearer from a scene of an accident or danger, the said loops forming parts of a built-in harness incorporating straps that transmit a pulling action on said loops to beneath the armpits and/or beneath the crutch of a wearer, or to a trouser or jacket waist band. □